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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,666	04/14/2004	Keishi Nakamura	010481A	4900
23850	7590	08/19/2005	EXAMINER	
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP			EASTHOM, KARL D	
1725 K STREET, NW			ART UNIT	
SUITE 1000			PAPER NUMBER	
WASHINGTON, DC 20006			2832	

DATE MAILED: 08/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/823,666

Applicant(s)

NAKAMURA ET AL.

Examiner

Karl D. Easthom

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 June 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 11-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/825,446.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 4-9 are rejected under 35 U.S.C. 103 as being obvious over Smekjkal in view of Person et al. '083 and Person '958. Smekjkal (6441718) discloses at Fig. 7A (metal strip electrodes 30, with resistor 28), the claimed invention except the thickness and fused solder on a lower portion of the electrodes, and perhaps the straight path and fused solder only on the electrodes. The diffusion layer is created by the cladding process disclosed at col. 3, lines 3-12, where the joining by the high pressure necessarily results in diffusion else the materials would not be joined. Person '083 discloses the claimed thickness at col. 4, lines 1-30 for the purpose of obtaining the desired resistance and strength, so that it would have been obvious to employ that thickness. Person discloses no cutting as an option there also since it states slots can be cut, or at col. 5, lines 40-45 indicating the resistors can be solid or cut, the latter in order to obtain the desired resistance. If there is no cut, and the resistor is originally manufactured to the desired thickness as disclosed at col. 4, the thickness or width has been set to the desired resistance and the trimming step is met. Similarly, Smekjkal suggests trimming is performed only if the desired resistance is not high enough, such that it would have been obvious to employ a noncut resistor is disclosed where any desired resistance is desired, see Smekjkal at col. 3, lines 43-55, where Aeach body is adjusted to its desired resistance value. That is, if the resistance value in the uncut resistor is desired, it is not adjusted. This meets the straight and uniform path between the

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electrodes. For the insulation, Smejkal discloses it stating “encapsulation material 62 is applied to the exposed front and rear surfaces and edges of the resistive strip 28” – col. 3, lines 55-65.

For the solder, Person ‘958 discloses solder 130 only on the lower surface at Fig. 10 to attach the resistor to a board so that such a solder on the lower surface only would have been obvious.

Smejkal indicates at cols. 3-4, lines 55-10, that solder 66 is only on the electrode surfaces because Smejkal discloses covering all exposed portions of the resistor 28 with the encapsulation 62 as just noted, and then employing solder, and thus with only the electrodes exposed, this process would leave solder only on each surface of the electrodes 66. This is similar to the Fig. 10 embodiment of Person showing only the electrodes exposed, which would have been obvious so as to protect the resistor. For claim 4, the thicknesses appear about equal in Fig.

7A and it would have been obvious to employ the claimed thickness where the device is described as having double thickness at the electrodes, see claim 8 of Smejkal et al. For claim 5, EVANOHM (an alloy of Cr, Cu, Al, Ni, to which Official Notice is take) of Person at col. 2 meets the claims, which is disclosed as a good foil material having a desired resistance and TCR so that such a material would have been obvious for that purpose where any resistive strip is disclosed by Smejkal. For claim 6, copper is disclosed for electrodes 30,32 of Smejkal.

Also, in Person at col. 4, lines 3-40, the relative electrode to resistor thickness is described as substantially less, suggesting the claimed ranges. For claims 6-7, copper or nickel and the materials of Person have the claimed relative conductivities where it would have been obvious to make the resistor lower in conductivity than the conductor, else it would not be called a resistor. For claim 8, Smejkal discloses insulation 34 on both sides. Also, grinding, shaving, etc. is disclosed at col. 3, lines 14-31 so that grinding or shaving the thickness of the middle would

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have been obvious to ensure all the copper is removed from the middle of the resistor. For claims 9-10, epoxy is disclosed at Smejkal col. 1 by way of specific reference to Rainer (US 5,604,477). disclosing epoxy as a good insulation material for resistors such as Person and Smejkal so that same would have been obvious. See the alternative below.

3. Claim 1 is rejected under 35 U.S.C. 103 as being obvious over Smejkal in view of Person '958 and Kernander et al. (3245021). Smejkal discloses at Fig. 7A (metal strip electrodes 30, with resistor 28), the claimed invention except the thickness and fused solder on a lower portion of the electrodes, and perhaps the straight path and fused solder only on the electrodes. The diffusion layer is created by the cladding process disclosed at col. 3, lines 3-12, where the joining by the high pressure necessarily results in diffusion else the materials would not be joined. Person '083 discloses the claimed thickness at col. 2, lines 30-40 for the purpose of obtaining the strength and power for a resistor. Smejkal suggests trimming is performed only if the desired resistance is not high enough, such that it would have been obvious to employ a noncut resistor is disclosed where any desired resistance is desired, see Smejkal at col. 3, lines 43-55, where each body is adjusted to its desired resistance value. That is, if the resistance value in the uncut resistor is desired, it is not adjusted. This meets the straight and uniform path between the electrodes. Or, Kernander discloses cutting along a uniform length as claimed at Fig. 2, as the cut 30 as disclosed at col. 3, lines 24-39, employed for the purpose of adjusting or trimming the device to its desired value so that same would have been obvious. For the insulation, Smejkal discloses it stating "encapsulation material 62 is applied to the exposed front and rear surfaces and edges of the resistive strip 28" – col. 3, lines 55-65. For the solder,

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Person '958 discloses solder 130 only on the lower surface at Fig. 10 to attach the resistor to a board so that such a solder on the lower surface only would have been obvious.

4. Claims 9-10 are rejected under 35 U.S.C. 103(a) as obvious over Smejkal et al. with Person '083 and Person '958, further in view of Rainer. As an alternative, here, Rainer is specifically noted in the 103 heading, such that it would have been obvious in view of Rainer, to employ epoxy where Smejkal discloses an improvement over Rainer for other reasons, and each disclose coatings to protect the resistor as noted at col. 1 of Smejkal.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as obvious over Smejkal et al. with Person '083 and '958, further in view of Shindo et al. Person with Smejkal disclose the claimed invention as noted above, except the solder thickness, the material. Shindo et al. discloses a fused solder layer 7 in the claimed thickness at cols. 2-3, lines 60-46, for the purpose of making a uniform solder layer of increased reliability due to a smoother surface that holds less contaminants, such that it would have been obvious to render such a thickness where solder is disclosed by Smejkal. The solder is fused where it is melted. See also the tin at col. 2, lines 35-40 or 65-70, which is a lead free solder, or suggests a lead free solder since it is a substitute for lead-tin solder and is a low melting point material.

6. Claims 2-3 are rejected under 35 U.S.C. 103(a) as obvious over Smejkal et al. with Person '038 and Person '958, further in view of Takeuchi et al. Smejkal or Person disclose the claimed invention, as noted above, except the solder and electrode thickness. That thickness is disclosed as standard in the art for a surface mounted chip resistor at col. 9, lines 30-33 for mounting thereof such that it would have been obvious to form the claimed thickness for the layers of Smejkal et al. whereat a surface mounted chip resistor is also disclosed for mounting.

Claims 11-15 are allowed primarily because the second major surface of each metal strip and a surface of the each end portion of the resistor body attached to the groove line in a common plane is not disclosed or suggested. That is, Fig. 23 of Ikemoto 6,816, 056 discloses a similar device but the latter element is not disclosed or suggested. That is the bottom of metal strip 99 is a second major parallel surface but it is not in a common plane to the end portion of the resistor body.

Applicant's arguments filed 6/30/5 have been fully considered but they are persuasive only as to claims 11-15, and moot and not persuasive for claims 1-10 depending on the elements argued. With respect to the solder only on the lower surface, this is moot due to Person '958 disclosing same as noted above. For the trimming uniformly, this is obtained by any straight piece of metal original formed since Person '083 at col. 4 discloses forming a resistance element 3mils thick and having dimensions of .250 by .150 inches to obtain a resistance value of a preferred value or another thickness can be used. Hence, while applicant's may claim a later trimming step, since the final product varies only in claimed thickness from the original product, the original product as disclosed above has the claimed structure. That is, how is applicant's structure different from the strip of metal of Person ' 983 that has been cut to size or milled to the desired thickness. That applicant mills or cuts one more time does not create a distinct product as claimed. Or note that Kernander above cuts (30 at Fig. 3) or trims a resistor metal plate in the same manner as applicant for the same reason demonstrating that such a cut has been known for some time. As to the product having

perpendicular cuts, this is only one embodiment, since Person '083 discloses that the device need not be trimmed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

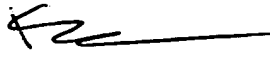
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl D. Easthom whose telephone number is (571) 272-1989. The examiner can normally be reached on M-Th, 5:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Karl D Easthom  
Primary Examiner  
Art Unit 2832

KDE